Amendments to the Specification:

Please replace the paragraph beginning at page 5, line 3 with the following redlined paragraph:

Predating Dr. Seahak Kim's work on the SPIDAR-G, Japanese Patent No. 2771010 and U.S. Patent No. 5,305,429 were filed that describe a "3D input device" as titled in the patent. This system consists of a support means, display means and control means. The support means is a cubic frame. Attached to the frame are 4 encoders and magnetic switches capable of preventing string movement over a set of pulleys. The pulleys connect the tip of each encoder to strings that are wound through the pulleys. Each string continues out of the pulley to connect with a weight that generates passive tension in the string. The ON/OFF magnetic switches allow the strings to be clamped ~~in place~~ on command from the host computer. The strings connect to the user's fingertip, which are connected to the weights through the pulleys. The user moves his or her fingertip to manipulate ~~a virtual object~~an "instruction point" in a virtual environment, which is displayed through a monitor. As the user moves his or her fingertip, the length of the four strings change, and a computer calculates a three-dimensional position based on the number of pulses from the encoder, which indicate the change of string length between the pulleys and the user's finger. If the three-dimensional position of the fingertip is found to collide with a virtual object as determined by a controlling host computer, then the ON/OFF magnetic switch is signaled to grasp ~~and hold~~ some or all of the strings ~~each string~~ so that movement is resisted. Forces are not rendered in a specific direction, but resistance to movement in some or all directions indicates that a user has contacted a virtual object. When the fingertip is ~~forced~~ moved outside the boundary of a virtual object, the magnetic switch is turned off to release the strings. The user is then able to move his or her finger freely.

Please replace the paragraph beginning at page 5, line 26 with the following redlined paragraph:

The "3 dimensional input device" cannot render controlled vector forces because of the following reasons, (i) it is impossible to display exact directional force, because the device can only ~~grasp or release~~apply drag, or resistance to movement to each string by ON/OFF magnetic switches and cannot impose an exact tension in each string; (ii) there is no accounting for the changing force applied by the weights attached to each string which provide a variable tension as the velocity of the moving weight changes the tension; (iii) there is no accounting for extraneous forces resulting from friction between the frame, pulleys, ON/OFF magnetic switches and the strings; and (iv) there is no initialization sequence described which is required for determining initial string lengths as need for determining string orientations and finger position so that forces can be reflected accurately. In summary this is not a true force feedback device, but instead is only a tracking mechanism with a single force effect (direction nonspecific drag). As an input device, the system also lacks a robust measurement method for determining the length of the strings, which results in substantial fingertip position measurement errors. There is also no means for measuring orientation of the finger (roll, pitch and yaw).

Please add the following two paragraphs before the paragraph beginning at page 20, line 6:

As used in the claims, the term *active tension* refers to a force applied in a longitudinal direction to a cable that, if it were not resisted, would result in lengthwise movement of the cable. For example, the driving motor 124 of each of the tool translation effecters 120 applies active tension to the cable, in that the motor applies a force in the form of torque to the associated spool to retract the associated cable, thereby transferring the force longitudinally along the cable. If the force is resisted, tension on the cable will be exerted, proportionate to the force applied by the motor; if the force is not fully resisted, the cable will rewind, i.e., the active tension will result in movement of the cable. If active tension applied to each of the cables of a

haptic system is equal, the system will be balanced and no movement will result. By selectively varying the force applied to individual cables, a *force response*, as described above, will be applied, which, if not resisted by the operator, will result in movement of the tool or attachment point according to a net value of the longitudinal forces applied. Calculation of values to produce a given force response will be described in more detail later.

This is in contrast to systems such as that described in the background of this disclosure with reference, for example, to US patent No. 5,305,429, in which a static weight applies a constant and equal tension to each of the lines, and in which the system can resist movement of the "instruction point" by application of drag, but cannot vary the longitudinal force applied by the weights so as to result in movement of the instruction point independent of force applied by the operator.